

REMARKS

Applicant respectfully requests reconsideration. Claims 2-4, 6, 10-13 and 25-34 were previously pending in this application. By this amendment, no claims have been canceled, claim 26 has been amended, and new dependent claims 34-38 have been added. As a result, claims 2-4, 6, 10-13 and 25-38 are pending for examination with claims 25 and 26 being independent claims. No new matter has been added. Applicant respectfully requests reconsideration in view of these amendments and the following arguments.

Claim Objections

In the Office Action dated August 9, 2007, claim 26 was objected to as being indefinite. In particular, the Office Action states that the limitation “the maximum pressure that can be set up in the downstream segment in the absence of injection” is unclear.

In response to this objection, claim 26 has been amended to clarify that the opening pressure of the first occlusion device is greater than *a predetermined maximum pressure* of the downstream segment in the absence of injection. Support for this amendment may be found at least on page 3, lines 15-19.

Accordingly, withdrawal of this objection is respectfully requested.

Rejections Under 35 U.S.C. §102

In the Office Action dated August 9, 2007, independent claims 25 and 26 were both rejected under 35 U.S.C. §102(b) as being anticipated by Uber (U.S. Patent No. 5,843,037). Applicant respectfully disagrees with this rejection.

Independent Claim 25

Independent claim 25 is directed to a method for injecting liquid under pressure to a patient. The method includes the step of providing liquid under pressure to a patient through a length of tubing, where the tubing includes a pressurizing system, a first occlusion system and a regulation system located upstream from the first occlusion system. The first occlusion system and the

regulation system define an intermediate segment having an intermediate pressure and the tubing also includes a segment downstream of the first occlusion system having a downstream pressure. Due to the action of the pressurizing system, there is a positive pressure during the injection in the intermediate segment and the downstream segment.

The method further includes the step of when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system *in such a manner that part of said positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure*, at least until the patient is disconnected from the tubing. There is no teaching or suggestion in Uber for this step.

Uber is directed to a device for delivering a liquid into a patient. The Uber device includes a metering pump 12, a static mixer 20, a pressurization pump 25 and a rotary switch 27 which can distribute the liquid between multiple patients through patient hookups 30, 31, 32. The Office Action appears to refer to the metering pump 12, the static mixer 20 and reference numeral "21" (shown in FIG. 1 but not mentioned in the Uber specification) as the equivalent "valve/ pump regulation system elements". The Office Action also appears to refer to the rotary valve 27 as equivalent to the "occlusion system" and the supply conduit 26 (which runs between the pressurization pump 25 and the rotary switch 27) as being equivalent to the "intermediate segment".

When referencing some of the limitations recited in independent claim 25, the Office Action refers to either Column 2 or Column 3 in Uber and then states that "the claim limitations of the intermediate segment having an intermediate pressure greater than the downstream segment (36) would be evident in operation of the system". The Office Action further states that this "pressure difference would be evident due to the fact that the liquid flows to the patient and not upstream into the reservoir, besides the overall nature of fluid dynamics."

It is unclear to the Applicant how this is evident in the operation of the Uber system. In particular, there is no teaching or suggestion in Uber for once the injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system *in such a manner that part of said positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure*, at least until the patient is disconnected from the tubing.

In fact, the claim limitation of maintaining the positive pressure in the intermediate segment while the positive pressure in the downstream segment is not maintained once injection is desired to be stopped cannot be “evident” in Uber because it does not occur in the operation of the Uber system. The Examiner’s attention is directed specifically to Column 4, Lines 55-60 of Uber where it is stated that: “a peristaltic system while effective is not sufficient to prevent cross-contamination if turned backwards, either by operator action or by back pressure, for example.” Uber goes on to state that in order to prevent back flow, which is what the claimed method of the present invention accomplishes, “there should be back flow prevention means in the line, or preferably in the peristaltic mechanism itself.” (Column 4, lines 58-60). There would be no need for a back flow prevention means if the Uber system operated as recited in claim 25 or if the claimed method were “evident” from the operation of Uber. Uber then goes on to describe in Columns 4 and 5 several very complicated systems to prevent such back flow or cross-contamination. For example, in Fig. 8, a system is described in which the fluid path splits in two parts. Fluid flows into inlet 6 of chamber 1, and its outlet 7 is blocked so that the chamber expands and drives the pressure plate 3 against the chamber 2. This drives the fluid out of chamber 2 and onto the patient. (Column 4, lines 61-67). Another solution to this problem is disclosed in Fig. 10 and Column 5, lines 13-39. In Figs. 6 and 7, an air gap is disclosed as a blocking means to preclude cross-contamination. (Column 5, lines 61-65). If, in the operation of Uber, the positive pressure in the intermediate segment was maintained while the pressure in the downstream segment was not maintained once injection is desired to be stopped, all of these systems proposed by Uber would not be necessary. Therefore, Uber cannot operate in the manner suggested by the Examiner. Moreover, the solution to the problem of contamination as set forth in the claims herein is clearly non-obvious over Uber in light of the complicated systems proposed by Uber to solve the very problem solved by Applicants in a simpler and more elegant fashion by the method claimed herein.

For at least these reasons, independent claim 25 is patentable over Uber.

Applicant respectfully requests that if this rejection is maintained that the Patent Office issue another non-final Office Action and clarify where such a teaching is within the Uber reference and also pointing out which components in the Uber reference are purportedly the equivalent to the components recited in the claims.

Independent Claim 26

As mentioned above, Applicant has amended independent claim 26 to more clearly distinguish over Uber. Independent claim 26 is also directed to a method for injecting liquid under pressure to a patient. The method includes the step of providing liquid under pressure to a patient through a length of tubing, where the tubing includes a pressurizing system, a first occlusion system and a regulation system located upstream from the first occlusion system. The first occlusion system and the regulation system define an intermediate segment having an intermediate pressure and the tubing also includes a segment downstream of the first occlusion system having a downstream pressure. Due to the action of the pressurizing system, there is a positive pressure during the injection in the intermediate segment and the downstream segment.

As amended, the method further includes the step of when injection to the patient is desired to be stopped, closing the regulation system and the first occlusion system *in such a manner that the first occlusion system closes when the pressure in the intermediate segment falls below an opening pressure of the first occlusion system, where the opening pressure of the first occlusion system is greater than a predetermined maximum pressure of the downstream segment in the absence of injection, so that part of said positive pressure is maintained in the intermediate segment, while the pressure in the downstream segment is not maintained at such positive pressure*, at least until the patient is disconnected from the tubing, in order to direct leakage of fluid from the first occlusion system to the patient. There is no teaching or suggestion in Uber for this step.

Uber is directed to a device for delivering a liquid into a patient. As discussed above with respect to claim 25, there is no teaching or suggestion in Uber for maintaining part of the positive pressure in the intermediate segment while the pressure in the downstream segment is not maintained at such positive pressure at least until the patient is disconnected from the tubing in order to direct leakage of fluid from the first occlusion system to the patient.

Additionally, there is no teaching or suggestion in Uber for the first occlusion system to close when the pressure in the intermediate segment falls below a predetermined maximum pressure of the downstream segment in the absence of injection. It is unclear to the Applicant where this is

taught in Uber. In fact, as discussed above, Uber teaches that these claimed steps do not occur in the operation of the Uber device.

For at least these reasons, independent claim 26 is patentable over Uber.

Applicant respectfully requests that if this rejection is maintained that the Patent Office issue another non-final Office Action and clarify where such teaching is within the Uber reference and also pointing out which components in the Uber reference are purportedly the equivalent to the components recited in the claims.

Rejections Under 35 U.S.C. §103

In the Office Action dated August 9, 2007, claims 2-4, 6, 10-13 and 27-34 were rejected under 35 U.S.C. §103(a) as being unpatentable over Uber in view of Lichtenstein (U.S. Patent No. 4,464,172).

Without acceding to the propriety of these rejections, claims 2-4, 6, 10-13 and 27-34 depend on either independent claim 25 or 26, and are thus patentable for at least the same reasons discussed above.

Accordingly, the rejections of these claims should be withdrawn.

New Claims

Applicant has added new dependent claims 35-38 to further define the invention. New claims 35-38 depend from claim 26 and are patentable for at least the same reasons as discussed above.

Support for the new claims may be found at least on page 3, lines 15-19, page 7, lines 15-20, page 9, line 13-17, page 9 line 30 – page 10, line 5.

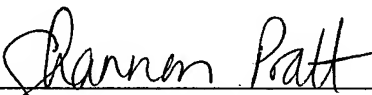
CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Dated: October 30, 2007

Respectfully submitted,

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